

## THE NORTH AMERICAN AND CARIBBEAN SPECIES OF *SYSTELLODERES* (HEMIPTERA: ENICOCEPHALIDAE)<sup>1</sup>

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**ABSTRACT:** The species of *Systelloderes* from North America and the Caribbean are described. Four new species, illustrations of the species, and a key are included.

**DESCRIPTORS:** Enicocephalidae, *Systelloderes*, Hemiptera.

*Systelloderes* is a genus of Enicocephalidae that occurs in the Ethiopian, Oriental, Australian, Nearctic, and Neotropical regions. Jeannel (1942) included six species in his key of the *Systelloderes*, but the number has since greatly increased. Twenty *Systelloderes* species are now known from Africa (Villiers 1969) and two species from New Zealand (Woodward 1956). This work will provide descriptions of the twelve *Systelloderes* species from North America and the Caribbean of which four species are new.

*Systelloderes* is easily separated from the other Enicocephalidae genera by its forewing venation, having an open discal cell and no basal cell; a simple pronotum, and its convex or elongated posterior lobe of the head. For a key to the Enicocephalidae genera of the Western Hemisphere refer to Kritsky (1977).

### Genus *Systelloderes* Blanchard (1852)

Type-species by original designation.—*Systelloderes moschatus* Blanchard

Small to large enicocephalids 2-11 mm.

Head with deep postocular impression. Posterior lobe usually without transverse impression. Rostrum moderate to long.

Pronotum distinctly divided into three lobes. Intermediate lobe smooth without deep inverted T-shaped culcus and Y shaped impressions on each side.

Scutellum triangular.

Foreleg with two claws and four spines on the tarsus (fig. 1). Apical end of tibia with 7 spines. Two possible arrangements, seven spines with innermost spines pear-shaped (fig. 1), seven spines with innermost spines with one pear-shaped and one elongated conical spine (fig. 2). Variations are seen in other regions.

Forewings with discal cell absent and basal cell open.

Male genitalia without distinct parameres, posterior apophysis of pygophore opening below anus.

Female usually stouter than male. Eyes usually smaller, middle lobe of pronotum larger, and forelegs more robust. Genitalia reduced to opening below anus.

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Key to the North American and Caribbean species of *Systelloderes*

1. Tibia without a large curved spine (fig. 1) . . . . . 2  
 Tibia with a large curved spine (fig. 2) . . . . . 3
2. Large enicocephalids, adults larger than 5.00 mm, posterior lobe of female head with parallel sides, posterior lobe of male head more rounded, body dark chocolate brown color (figs. 3 & 4) . . . . . *longiceps*  
 Smaller than 5.00 mm, posterior lobe of female head with rounded sides, posterior lobe of male head with rounded sides, body brown to light brown (figs. 5 & 6) . . . . . *angustatus*
3. Posterior lobe of head pear-shaped . . . . . 4  
 Posterior lobe of head round or with parallel sides . . . . . 5
4. Middle lobe of pronotum divided into two lobes by a longitudinal sulcus, small enicocephalid 2.25-2.50 mm (fig. 7) . . . . . *nitidus*  
 Middle lobe of pronotum with slight longitudinal impression, more robust, 2.75-3.00 mm (fig. 8) . . . . . *inusitutus*
5. Ocelli very large . . . . . 6  
 Ocelli moderate or small size . . . . . 7
6. Ocelli laterally directed, posterior lobe of head large and very round (fig. 9) . . . . . *lateralus*  
 Ocelli directed upward, posterior lobe length greater than width (fig. 10) . . . . . *dorsalus*
7. Posterior lobe of male head wider than anterior lobe giving head a globular appearance; female head with rounded posterior lobe (figs. 11 & 12) . . . . . *doriai*  
 Not as above . . . . . 8
8. Posterior lobe of head as wide as anterior lobe, (fig. 13) . . . . . *culicus*  
 Posterior lobe of head not as wide as anterior lobe . . . . . 9
9. Large enicocephalid, adults, 5.00 mm, dorsal surface of pronotum very flat, posterior lobe of pronotum as wide as intermediate lobe (fig. 14) . . . . . *grandes*  
 Not as above . . . . . 10
10. Posterior lobe of head with almost parallel sides, female with posterior lobe of pronotum much wider than intermediate lobe (fig. 15) . . . . . *jamaicensis*  
 Posterior lobe of head more rounded, female's posterior lobe of pronotum not much wider than intermediate lobe . . . . . 11
11. Male with large intermediate lobe of pronotum and robust forelegs, female with posterior lobe of head longer than wide (figs. 16 & 17) . . . . . *crassatus*  
 Male with small intermediate lobe of pronotum and female with slender forelegs, posterior lobe of head not longer than wide (fig. 18 & 19) . . . . . *biceps*

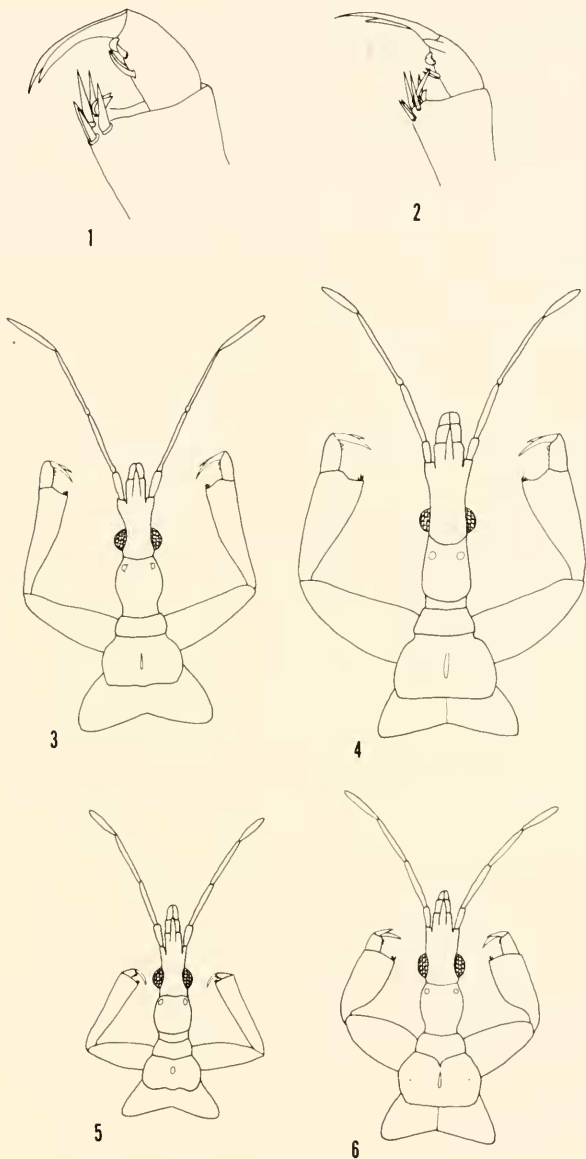


Figure 1. *Systelloderes angustatus* foreleg spination. 2. *S. biceps* foreleg spination. 3. *S. longiceps* male. 4. *S. longiceps* female. 5. *S. angustatus* male. 6. *S. angustatus* female.

***Systelloderes longiceps* Jeannel (1943) (figs. 3 & 4)**

Type-locality. – Callaga, Peru.

Male length 5.00-6.00 mm. Sparcely clothed with long setae. Body a bronze color, wings smokey.

Head 1.21 mm long. Posterior lobe of head longer than wide. Ocelli of moderate size, placed far apart. Length of antennal segments I, 0.17 mm; II, 0.31 mm; III, 0.42 mm; IV, 0.31 mm.

Pronotum smooth, intermediate lobe with deep median impression. Posterior margin emarginate.

Male foreleg; femur length to width ratio 3.81, tibia length to width ratio 3.60. Female foreleg stout; femur length to width ratio 2.40, tibia length to width ratio 2.86. Spination as in fig. 1.

This species has been collected in Costa Rica.

***Systelloderes angustatus* (Champion) (1898) (figs. 5 & 6)**

Type-locality. – Volcan de Fuego, Guatemala.

Male length 4.00 mm. Sparcely covered with long setae. Body shiny brown, wings smokey.

Head 1.12 mm long. Posterior lobe longer than broad. Ocelli of moderate size and placed far apart. Length of antennal segments I, 0.13 mm; II, 0.27 mm; III, 0.34 mm; IV, 0.27 mm.

Intermediate lobe of pronotum with slight pit depression located medially.

Male foreleg slender; femur length to width ratio 3.11, tibia length to width ratio 3.25. Female foreleg stout; femur length to width ratio 2.69, tibia length to width ratio 2.60. Spination as in fig. 1.

***Systelloderes nitidus* (Usinger) (1932) (fig. 7)**

Type-locality. – Puerto Castilla, Honduras.

Female length 2.25-2.50 mm. Sparcely clothed with short setae. Body light amber color, wings hyaline.

Head 0.74 mm long. Posterior lobe pear-shaped. Ocelli small, placed far apart. Length of antennal segments I, 0.06 mm; II, 0.19 mm; III, 0.19 mm; IV, 0.19 mm.

Intermediate lobe of pronotum with diverging median impression. Anterior lobe collar-like.

Forelegs stout; femur length to width ratio 2.50, tibia length to width ratio 2.70. Spination as in fig. 2.

***Systelloderes inusitatus* (Drake and Harris) (1927) (fig. 8).**

Type-locality. – Woodville, Mississippi.

Length 2.75- 3.00 mm. Sparcely clothed with short setae. Body brown; rostrum, legs, antenna lighter brown; wings hyaline.

Head 0.61 mm long. Posterior lobe of head pear-shaped, slightly broader than long. Ocelli of moderate size, placed far apart. Length of antennal segments I, 0.11 mm; II, 0.13 mm, III, 0.15 mm; IV, 0.19 mm.

Intermediate lobe of pronotum with median impression not extending to posterior margin.

Male foreleg slender; femur length to width ratio 3.18, tibia length to width ratio 3.66. Female foreleg slender; femur length to width ratio 3.00, tibia length to width ratio 3.20. Spination as in fig. 2.

***Systelloderes lateralis*, new species (fig. 9).**

Male length 3.25 mm. Sparcely clothed with long setae. Head, pronotum, scutellum

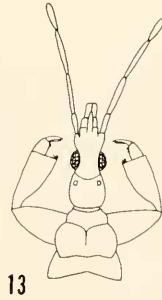
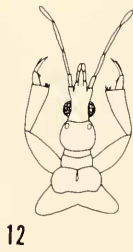
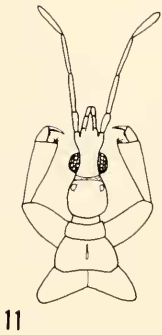
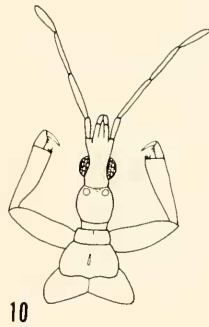
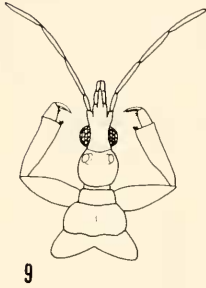
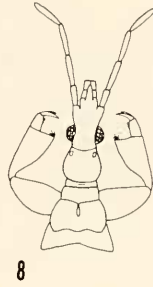
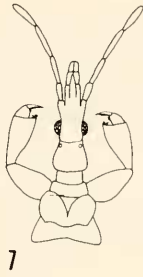


Figure 7. *Systelloderes nitidus* female. 8. *S. inusitatus* female. 9. *S. lateralis* male. 10. *S. dorsalis* male. 11. *S. culicus* male. 12. *S. doriai* male. 13. *S. doria* female.

light brown; rostrum, antenna, legs and abdomen yellow; base of ocellus red; wings hyaline.

Head 0.80 mm long. Posterior lobe very round. Ocelli very large and diverging. Length of antennal segments I, 0.13 mm; II, 0.25 mm; III, 0.27 mm; IV, 0.23 mm.

Pronotum smooth. Intermediate lobe with slight intermediate impression. Posterior margin emarginate.

Forelegs slender; femur length to width ratio 3.00, tibia length to width ratio 3.16. Spination as in fig. 62.

Holotype: male, 2 paratypes; U.S.A., Virginia, Arlington; June 1, 1944 (collected by R.I. Sailer). The type is in the United States National Museum.

*Systelloderes dorsalus*, new species (fig. 10)

Male length 4.00 mm. Sparcely covered with long setae. Body a rich brown color, wings opaque brown.

Head 0.87 mm long. Posterior lobe generally round, longer than broad. Ocelli large directed upward. Length of antennal segments I, 0.13 mm; II, 0.27 mm; III, 0.29 mm; IV, 0.23 mm.

Anterior lobe of pronotum with slight transverse impression. Intermediate lobe with median pit. Posterior lobe with transverse impression.

Forelegs slender; femur length to width ratio 3.57, tibia length to width ratio 3.11. Spination as in fig. 2.

Holotype: male; Jamaica, Hardwar Gap, March 10, 1970 (collected by Wirth and Farr at stream margin). The type is in the United States National Museum.

*Systelloderes doriai* Villiers (1968) (figs. 11 & 12)

Type-locality. — San Jose, Costa Rica.

Male length 3.25 mm. Sparcely clothed with long setae. Body brown; rostrum and antenna lighter brown; wings hyaline.

Head 0.85 mm long. Posterior lobe of male round. Ocelli of moderate size placed far apart. Posterior lobe of female with more parallel sides. Ocelli as in male. Length of antennal segments I, 0.13 mm; II, 0.19 mm; III, 0.23 mm; IV, 0.25 mm.

Intermediate lobe of pronotum with slight impression.

Male foreleg more slender than female. Male femur length to width ratio 2.90, tibia length to width ratio 3.00. Female femur length to width ratio 1.93, tibia length to width ratio 2.33. Spincation as in fig. 2.

*Systelloderes culicus* (Uhler) (1892) (fig. 13)

Type-locality. — Great Salt Lake, Utah.

Male length 3.50 mm. Moderately clothed with long setae. Head dark brown; remainder of body light brown; wings hyaline.

Head 0.81 mm long. Posterior lobe round. Ocelli of moderate size and placed far apart. Length of antennal segments I, 0.13 mm; II, 0.21 mm; III, 0.25 mm; IV, 0.23 mm.

Intermediate lobe of pronotum with slight median impression. Posterior margin emarginate.

Forelegs slender; femur length to width ratio 3.00, tibia length to width ratio 3.14. Spination as in fig. 2.

*Systelloderes grandes*, new species (fig. 14)

Female length 5.00 mm. Sparcely clothed with short setae. Body yellow brown color.

Head 1.27 mm long. Posterior lobe elongate, sides almost parallel. Ocelli small, placed close together. Length of antennal segments I, 0.17 mm; II, 0.36 mm; III, 0.40 mm; IV, 0.36 mm.

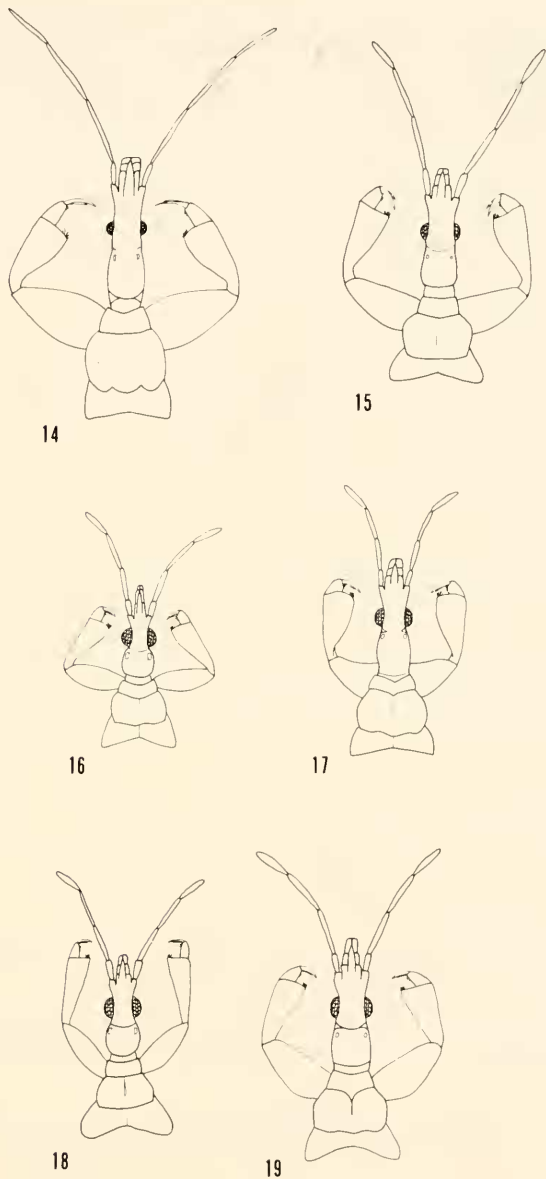


Figure 14. *Systelloderes grandes* female. 15. *S. jamaicensis* female. 16. *S. crassatus* male. 17. *S. crassatus* female. 18. *S. biceps* male. 19. *S. biceps* female.

Pronotum with flat dorsal surface. Intermediate lobe as wide as posterior lobe.

Forelegs very stout; femur length to width ratio 2.40, tibia length to width ratio 1.84. Spination as in fig. 2.

Holotype: female; U.S.A.; Oregon, Jackson Co.; 14 miles S. Rush; May 19, 1962 (collected by J. Schuh under rocks along stream). Type is deposited in the California Academy of Science Insect Collection.

*Systemloderes jamaicensis*, new species (fig. 77)

Female length 4.00 mm. Sparcely clothed with short setae. Body brown, wings hyaline.

Head 1.23 mm long. Posterior lobe with sides almost parallel, length not greater than width. Ocelli small placed far apart. Length of antennal segments I, 0.13 mm; II, 0.34 mm; III, 0.34 mm; IV, 27 mm.

Pronotum smooth. Intermediate lobe with slight median suture.

Forelegs stout; femur length to width ratio 2.66, tibia length to width ratio 2.18. Spination as in fig. 62.

Holotype: female; Jamaica; Portland Trail; Caledonia Peak; May 26, 1956 (collected by C. Hoff). The type is deposited in the United States National Museum.

*Systemloderes crassatus* (Usinger) (1932) (figs. 16 & 17)

Type-locality. — Palm Springs, California.

Male length 3.50 mm. Moderately clothed with long setae. Head brown, remainder of body lighter brown.

Head length 0.91 mm. Posterior lobe of head of male round. Ocelli moderately directed laterally. Female posterior lobe more elongate, eyes smaller, ocelli smaller laterally directed. Length of antennal segments I, 0.11 mm; II, 0.17 mm; III, 0.23 mm; IV, 0.27 mm.

Anterior margin of pronotum emarginate. Intermediate lobe of male large, but smaller than female, with slight median impression.

Forelegs stout. Male femur length to width ratio 2.33, tibia length to width ratio 2.37. Female femur length to width ratio 2.00, tibia length to width ratio 2.00. Spination as in fig. 2.

*Systemloderes biceps* (Say) (1832) (figs. 18 & 19)

*Systemloderes terrenus* (Drake and Harris) (1927), new synonym.

Type-locality. — Pennsylvania, U.S.A.

Male length 3.5-4.00 mm. Moderately clothed with long setae. Head dark brown; rostrum, antennae, legs, pronotum light brown; wings hyaline.

Head 0.91 mm. Posterior lobe of male round, with moderate sized ocelli placed far apart. Length of antennal segments I, 0.13 mm; II, 0.27 mm; III, 0.25 mm; IV, 0.23 mm.

Intermediate lobe of pronotum with slight median impression. Posterior lobe with slight transverse impression and slightly emarginate.

Male foreleg slender; femur length to width ratio 3.16, tibia length to width ratio 3.36. Female foreleg stout; femur length to width ratio 2.25, tibia length to width ratio 2.16. Spination as in fig. 2.

### INCERTE SEDIS

The following two species are doubtful or I was unable to obtain material for study.

1. *Systemloderes iowensis* (Drake and Harris) (1927)

2. *Systemloderes tennis* Jeannel 1942.



## DISCUSSION

The Caribbean species, *dorsulus* and *jamaicensis*, are the first species to be described from the said region. Barber (1939) reports a *Systelloderes* from Puerto Rico but was unable to describe it owing to its poor condition.

The foreleg spination of *longiceps* and *angustatus* (fig. 1) is very similar to the spination of the *Systelloderes* species which occur in the Neotropical region. The other *Systelloderes* species described have the spination shown in fig. 2. This might possibly indicate that there was a single migration into the Nearctic and Caribbean which subsequently speciated.

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## LITERATURE CITED

- Barber, H.G. 1939. Insects of Porto Rico and the Virgin Island-Hemiptera-Heteroptera (except the Miridae and Corixidae). New York Acad. Sci., Sci. Surv. Porto Rico and Virgin Islands, 14:263-441.
- Blanchard, Emile. 1852. In Claude Gay's "Historia y fisica y politica de Chile, 28 vols. and Atlas, 2 vols. Paris, 1844-1871." Zoologia VII, pp. 224-225. Atlas pl. 2, fig. 14.
- Champion, G.C. 1898. In "Biologia Centrali-Americana, Heteroptera, 2 Vols. 1881-1901, II, pp. 158-162.
- Drake, C.J. and Harris, H.M. 1927. Three new species of Enicocephalidae. Ohio J. Sci. 27:102-103.
- Jeannel, R. 1942. Les Héxicocephalides. Monographie d'un groupe d'Hémiptères hematophages. Ann Soc. ent. France, 110:273-368.
- \_\_\_\_\_. 1943. Nouveaux Héxicocephalides sudaméricains. Bull. Soc. ent. France, 48:125-128.
- Kritsky, G. 1977. Two new genera of Enicocephalidae (Hemiptera). Ent. News, 88:161-168.
- Say, T. 1832. Descriptions of new species of Heteropterous Hemiptera of North America. New Harmony, Ind. p. 32. The Complete Writings of Thomas Say on the Entomology of North America, John L. LeConte, I, p. 356, 1859.
- Uhler, P.R. 1892. Observations on some remarkable Heteroptera of North America. Trans. Maryland Acad. Sci. 1:179-184.
- Usinger, R.L. 1932. Miscellaneous studies in the Henicocephalidae. Pan-Pacific Ent. 8:145-156.
- Villiers, A. 1968. Trois nouveaux *Systelloderes* d'Amérique intertropicale (Hemipteres, Henicocephalidae). Annali Mus. Civ. Stor. nat. Giacomo Doria, 77:338-341.
- \_\_\_\_\_. 1969. Révision de Hémiptères Henicocephalidae Africains et Malgaches. Annales Mus. r Afr. cent. 176:1-232, 335 figs.
- Woodward, T.E. 1956. The Heteroptera of New Zealand. Part II- the Enicocephalidae. Trans. Roy. Soc. New Zealand, 84:391-430.